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REPORT  
SITE ASSESSMENT RECOMMENDATIONS  
WALKER PROPERTIES SITE  
SANTA FE SPRINGS, CALIFORNIA

DAMES & MOORE JOB NO. 13262-013-042  
SANTA BARBARA, CALIFORNIA  
OCTOBER 16, 1986

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# Dames & Moore

17.0G/6-COV



October 16, 1986

Redevelopment Agency  
City of Santa Fe Springs  
11710 Telegraph Road  
Santa Fe Springs, California 90670

Attention: Richard H. Weaver  
Director, Redevelopment Agency

Report  
Site Assessment Recommendations  
Walker Properties Site  
Santa Fe Springs, California

#### INTRODUCTION

Presented in this report are our recommendations regarding the scope of additional site assessment studies to be conducted at the Walker Properties site at 11020 Bloomfield Road, Santa Fe Springs, California. This report includes the results of our observations of the removal of an underground tank by L. Blain Co. and a soil sampling program conducted in the excavation following tank removal. The general site area is shown on Figure 1. Dames & Moore has previously conducted several projects at the subject site (see our Subsurface Investigation Report, dated July 1, 1985, and our Draft Action Plan, dated November 27, 1985).

The removal of the underground tank by L. Blain Company was observed by Dames & Moore to ensure compliance with Dames & Moore's Draft Action Plan, L. Blain's written plan of action and applicable environmental regulations. The

Company and stockpiled onsite and covered with plastic sheeting. First, the tank was lifted from the excavation using a crane. Inspection of the tank indicated that it was structurally sound (external paint and coatings appeared intact) at the time of removal. However, evidence of leakage was observed in the immediate vicinity of the fillport connections to the top of the tank. Following approval from regulatory agency personnel, the tank was removed and loaded onto a truck and transported by Sun-Ag Company to their permitted treatment facility in National City, California where it was triple-rinsed and reused.

The compacted soil slab beneath the tank had minimal oil staining. The side-walks-of-the excavation were stained, particularly on the west side, adjacent to the fillports. Although Dames & Moore's Draft Action Plan and L. Blain's plan of action called for the removal of stained soils after tank removal, no excavating equipment was made available by L. Blain Company. Therefore, no additional visibly contaminated soil was removed at that time. The excavation was barricaded and left open pending approval for backfilling.

#### Soil Sampling Program

Immediately following the removal of the tank, a Dames & Moore geologist and a representative of GeoResearch, Inc. (the sampling and analytical subcontractor to L. Blain Co.) entered the excavation and collected soil samples. Some of the samples collected by GeoResearch were analyzed onsite with a portable gas chromatograph. The results of these field analyses, although not conclusive indicated the presence of petroleum hydrocarbons in the soils beneath the tank.

Dames & Moore collected four soil samples from the excavation (see Figure 2 for locations). Samples 1 and 2 were collected from the base of the excavation in areas that appeared to be contaminated. Sample 3 was collected from a stained area along the surface of the west wall of the excavation about 3 feet below ground surface (bgs). Sample 4 was collected from the surface of the west wall of the excavation directly beneath sample 3 at about 5 feet bgs. Although this latter area did not appear to be stained, the sample was collected and analyzed to attempt to quantify downward migration of contamination,

soil samples were collected to evaluate whether soil contamination exists in the floor and walls of the excavation from which the underground tank was removed. A detail of the underground tank excavation showing the soil sample locations is presented in Figure 2. Other areas of concern on the Walker Properties site discussed in this report include the two large above-ground tanks in the southern portion of the site and the small above-ground tanks present in the vicinity of the underground tank area (Figures 1 and 2).

#### PURPOSE AND SCOPE

The purpose of the current investigation is to: (1) ensure that the tank removal procedure was conducted according to our Draft Action Plan, L. Blain Company's plan of action and in compliance with applicable environmental regulations; (2) collect soil samples from the floor and walls of the existing excavation to determine whether potentially hazardous compounds, heavy metals and polychlorinated biphenyls (PCBs) are present in the soils surrounding the existing excavation; and, (3) provide additional site assessment recommendations for the two large above ground tanks area and the small above ground tanks areas as well as the underground tank excavation. The scope of the investigative activities completed to date includes observation of the tank removal, collection of four soil samples, analysis of the samples for California Administrative Manual (CAM) metals (using EPA approved ICAP method) and PCBs (using EPA method 8080), interpretation of the analytical results, and formulating recommendations for additional site investigations and remediation. The results and conclusions of our completed studies are discussed below followed by our recommendations for further sampling, analysis and remediation.

#### INVESTIGATIVE METHODS

##### Underground Tank Removal

On September 18, 1986, a Dames & Moore geologist was onsite at the Walker Properties site and observed the underground tank removal procedure. Representatives of the City of Santa Fe Springs Fire Department and the Los Angeles County Department of Public Works were also present. The soils overlying and adjacent to the sides of the tank had previously been removed by L. Blain

if any, from the sample 3 area. The samples were collected with pre-cleaned stainless steel scoops and placed in pre-cleaned wide mouth glass jars equipped with Teflon-lined lids. After closure, the sample jars were sealed with chain of custody seals and electrical tape. Labels attached to each sample jar included the following information: (1) sample number; (2) date and time of collection; (3) collector's name; (4) owner; and (5) location. The samples containers were stored in an ice chest cooled with blue ice pending delivery to the analytical laboratory. Completed chain of custody forms accompanied the samples which were hand delivered to the analytical laboratory.

#### Analytical Testing Program

The soil samples were analyzed by International Technology Corporation Analytical Services Laboratory in Cerritos, California (IT). The samples were analyzed for CAM metals using an EPA-approved ICAP methodology, and for PCBs using EPA Method 8080 which includes gas chromatography with electron capture detection (GC-ECD). Quality control was maintained throughout laboratory analytical procedures. The results of this analysis are summarized in Table 1 and presented in Appendix A. The IT laboratory is State of California Department of Health Services-approved and EPA-accredited to perform these procedures.

### RESULTS AND CONCLUSIONS

#### Investigative Results

The results of the laboratory analyses of the soil samples (Table 1 and Appendix A) indicate that the surface soils in the existing excavation contain elevated levels of PCBs and some metals. The California Administrative Code Title 22, Division 4, Chapter 30, Article 11, Section 66699 has established concentration limits for particular compounds/substances above which the substances being tested are considered to be hazardous. *? source?*

The California Department of Health Services considers any waste which contains a compound listed in Table 1 to be a hazardous waste if: (1) the total concentration of a particular compound exceeds the Total Threshold Limit Concentration (TTLC) for that compound; or, (2) the extractable concentration

(in mg/l), as determined by a Waste Extraction Test (WET), of any listed compound exceeds the respective Soluble Threshold Limit Concentration (STLC) for that compound. It should be noted that the samples were analyzed only for total concentrations; WET tests were not performed.

Total concentrations in Samples 2 and 3 exceed the TTLC for PCB's (50 mg/kg or ppm) and sample 1 exceeds the STLC for PCB (5mg/l or ppm). Total concentration in Sample 3 also exceeds the TTLC for lead (1,000 mg/kg). Total concentrations in all four samples exceed the STLC, but are less than the TTLC, for barium (100 mg/l), cadmium (1.0 mg/l) and vanadium (24 mg/l). Total concentrations in samples 1, 2 and 4 exceed the STLC, but are less than the TTLC, for copper (25 mg/l) and lead (5.0 mg/l). Total concentration in sample 4 exceeds the STLC, but is less than the TTLC for nickel (20 mg/l) and sample 3 exceeds the STLC, but is less than the TTLC for zinc (250 mg/l).

#### CONCLUSIONS

It is our conclusion that at least some of the soils in the side walls and bottom of the excavation are hazardous because of their PCB and lead concentrations. Hazardous concentrations of barium, cadmium, vanadium, copper, nickel and zinc may exist and could be determined by performing WET tests on the samples.

Our evaluation of the analytical results suggest that a positive correlation exists between stained soils and elevated contaminant concentrations. We believe that stained soils will exhibit detectable contaminant concentrations when analyzed, while clean appearing soils will contain no detectable contaminants. Our recommendations for further assessment, discussed below, are based on this correlation.

#### RECOMMENDATIONS

##### Underground Tank Excavation

Our recommendation is to evaluate the vertical and lateral extent of contamination in the vicinity of the underground tank excavation for the purpose of developing costs for site remediation by excavation and removal of con-

taminated soils. The analytical results discussed above indicate that the surface soils in the existing excavation would be considered hazardous, thus requiring additional remediation. Both PCBs and heavy metals have an affinity for the soil and normally do not migrate far from their source. Therefore, it is likely that the contamination from these substances has not migrated extensively beyond the existing excavation.

We recommend that an additional soil sampling program be implemented to determine the exact horizontal and vertical extent of contamination. To accomplish this, we recommend two test pits should be dug (with a backhoe using a one foot bucket) in the bottom of the excavation. The pits should be excavated in soils that appear stained. In each pit, soil samples should be collected from the stained soil at depths of about one foot and from the clean appearing soil beneath the stained soil. We also recommend that six trenches be dug with a backhoe around the perimeter of the excavation. The trenches should be started in stained soil at the edge of the excavation and extend in lines away from the excavation. These six trenches should extend vertically and laterally out from the excavation to a point beyond which the soils no longer appear stained. In each trench, soil samples should be collected at selected intervals laterally from stained soil at a depth of about one foot and from clean appearing soils located below the stained soils. The samples collected from the outermost sample locations of each trench will both be from clean appearing soil. A detail of the proposed sampling plan is shown in Figure 3.

Of the samples collected, we recommend that an initial chemical analysis program be conducted on one sample of stained soil and one sample of clean appearing soil from each of the four sides of the excavation and on one sample of clean appearing soil from the base of the excavation, for a total of nine samples to be analyzed. If the results of the chemical analysis indicate that only the stained soil samples yielded detectable contaminant concentrations (clean appearing soil samples containing no detectable contaminants) then no additional chemical analysis is necessary and only stained soils will need to be excavated to remediate the site. If, however, both stained and clean appearing soil samples yield detectable contaminant concentrations, it may be

necessary to analyze all of the collected soil samples to be able to develop an appropriate remediation plan. The soil samples should be analyzed for CAM metals (by EPA approved ICAP methods) and PCBs (by EPA Method 8080).

*other metals??  
mentioned in conclusion  
pg 6-5*

#### Two Large Above-Ground Tanks

Soil conditions beneath the two large above-ground tanks located in the southwestern corner of the Walker Properties site (see Figure 1) were evaluated previously in by Dames & Moore. Samples collected from two angle borings drilled beneath the tanks and field observations did not yield any evidence of contamination in the area of the two tanks. However, the possibility of contamination beneath the tanks cannot be ruled out based solely on this evidence. It is our opinion that further borings and soil sampling may not verify the absence or presence of contamination and thus may not constitute an efficient and cost effective manner to evaluate the potential for contamination beneath the two large tanks. A more thorough evaluation can be performed following removal of the tanks. Therefore, we recommend that a thorough investigation of the soils below the tanks be undertaken, under the technical supervision of a California registered geologist qualified in this type of evaluation, at the time the tanks and concrete tank pads are removed. In addition, we recommend an approved demolition plan be prepared prior to tank demolition.

*??  
Parcel  
2*

#### Small Above-Ground Tanks Areas

In order to evaluate the nature and extent of contamination in the small above-ground tanks areas (Figure 4) for the purpose of estimating determining costs for site remediation we recommend that two samples of residual solid surface sludge and one sample of ponded liquid waste, if present, be collected from each of the two tank areas. In addition, we recommend that two pits be installed with a backhoe in each of the two tank areas where liquids are not currently ponded. These pits will be used to evaluate the vertical extent of the stained soils in the tank areas and should be dug deeply enough to encounter clean appearing soils. The locations of the test pits should be determined in the field.

Two undisturbed soil samples, one of stained soil and one of clean appearing soil, should be collected with a hand auger from each pit. In order



to reduce analytical costs, only the solid surface sludge and ponded liquid waste samples will be analyzed first (although all the soil samples will be extracted and preserved for future analysis, if necessary). If these samples prove to be uncontaminated then no additional analyses are required and the tank areas can be considered to be uncontaminated. If, however, the sludge samples are contaminated, then the soil samples will also have to be analyzed in order to evaluate the extent of contamination in the small above ground tanks areas. The samples should be analyzed for CAM metals (by EPA-approved ICAP methods), PCBs (by EPA Method 8080 for soil and 608 for liquid) and polynuclear aromatic hydrocarbons (by EPA Method 8310 for soil and 610 for liquid).

#### SCHEDULE AND COSTS

The proposed schedule for the completion of the recommendations discussed herein for the underground tank excavation and the small above-ground tanks areas is as follows:

- ° Week of October 20-24 - Field investigation including digging of test pits and trenches and sample collection;
- ° Weeks of October 27 through November 7 - Laboratory analysis of soil, sludge and liquid samples;
- ° Week of November 10-14 - Evaluation of field investigative results and laboratory analytical results and preparation of a site mitigation recommendations report; and,
- ° November 14 - Submittal of a site mitigation recommendations report to the City of Santa Fe Springs, plus costs.

The estimated costs for the services described herein will vary depending on the amount of sample analysis required. If a minimum number of samples are analyzed (nine from the underground tank excavation and six from the small above-ground tanks areas), the estimated total costs would be \$14,935. If,

however, the maximum number of samples are analyzed (36 from the underground tank excavation and 14 from the small above-ground tanks areas), the estimated total costs would be \$36,135. A presentation of the costs is provided in Table 2. It should be noted that these costs do not include costs for a backhoe and operator and plastic sheeting (for stockpiling of soils) which are to be provided by the contractor employed directly by the property owner.

Dames & Moore has enjoyed conducting this investigation for you. If you have any questions regarding this report, please contact us. We look forward to assisting you on future projects.

Very truly yours

DAMES & MOORE



Thomas A. Vinckier  
Associate



Robert E. Troutman  
Project Geologist

TABLE 1  
SOIL SAMPLES ANALYTICAL RESULTS SUMMARY(1)

CONSTITUENT	SAMPLE AND CONCENTRATION(2)			
	1	2	3	4
PCB-1242	-	58	248	1
PCB-1248	29	-	-	-
Antimony	TR <2 <sup>(3)</sup>	TR <2	TR <2	TR <2
Arsenic	2.63	4.39	1.42	2.50
Barium	190	150	260	190
Beryllium	0.5	0.4	TR <0.3	0.7
Cadmium	3.1	2.1	1.7	3.1
Chromium (total)	26	23	16	30
Cobalt	14	12	6.0	16
Copper	32	38	16	27
Lead	130	54	1100	74
Mercury	0.17	TR <0.1	0.13	0.12
Molybdenum	1.2	1.0	0.7	0.9
Nickel	18	16	10	20
Silver	1.3	1.5	ND <0.3 <sup>(4)</sup>	ND <0.3
Vanadium	63	55	32	74
Zinc	120	100	490	74

(1) Only those constituents detected in at least one of the samples are shown herein (selenium and thallium were not detected in any of the samples).

(2) PCB concentrations are in parts per million (ppm); and metals concentrations are in milligrams per kilogram (mg/kg) which is equivalent to ppm.

(3) The trace less than (TR<) symbol means "trace detected but not at or above the indicated value (detection limit)".

(4) The not detected less than (ND<) symbol means "not present at or above the indicated value (detection limit)".

17.0G/6-T1

*See table 1 of 10/8/86 report*

TABLE 2

## SITE ASSESSMENT RECOMMENDATIONS - ESTIMATED COSTS

<u>Item</u>	Cost (\$)	
	<u>Minimum Analytical Program</u>	<u>Maximum Analytical Program</u>
Field Investigation		
Labor	\$ 930	\$ 930
Sample Collection	400	400
Laboratory Analysis	11,105	32,305
Data Analysis and Report Preparation	<u>2,500</u>	<u>2,500</u>
Estimated Total	\$14,935	\$36,135

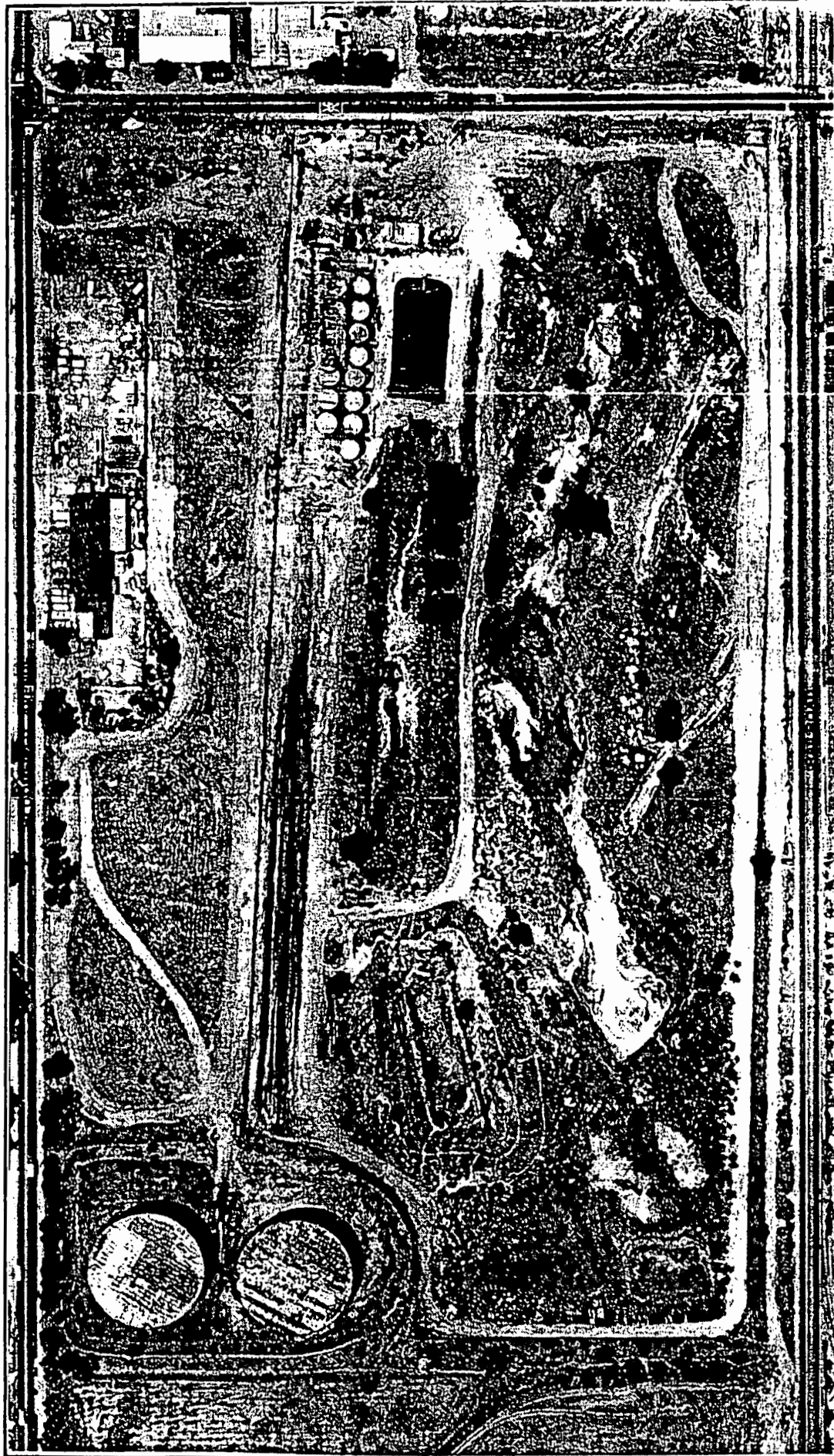
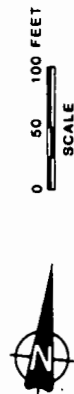


FIGURE 1  
WALKER PROPERTIES SITE  
(1959 AERIAL PHOTOGRAPH)



**EXPLANATION:**

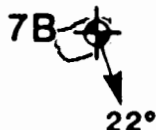


Angle boring showing direction of drilling and angle of boring from vertical

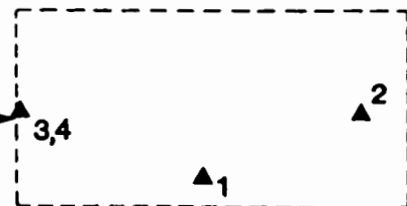
▲<sub>1</sub>

Location of soil sample (samples 1 and 2 collected from base of excavation; sample 3 from 3' bgs of west wall, and sample 4 from 5' bgs of west wall, directly below sample 3)

EXCAVATED  
SOIL PILE



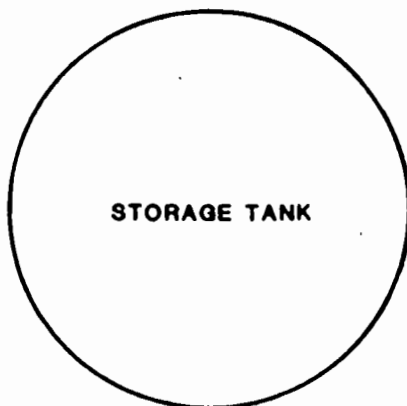
UNDERGROUND  
TANK  
EXCAVATION



25°

BERM

PONDED OILY WATER

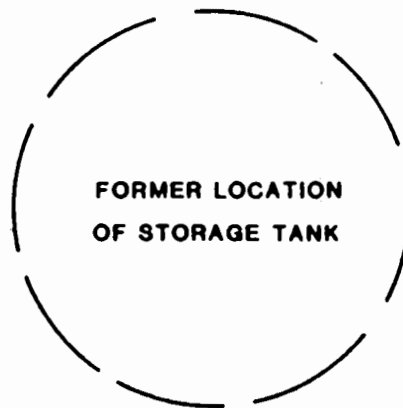


STORAGE TANK

FORMER LOCATION  
OF STORAGE TANK



FORMER LOCATION  
OF STORAGE TANK



FORMER LOCATION  
OF STORAGE TANK

CONCRETE  
BLOCK WALL

CONCRETE  
BLOCK WALL

NORTH

0 12 FEET  
APPROXIMATE SCALE

FIGURE 2

SKETCH MAP  
AREA 7

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EXPLANATION:

— Limits of Excavation

- - - Hypothetical limit of stained surface soil

▭ Proposed back hoe trench/plot

HYPOTHETICAL LIMIT  
OF STAINED SURFACE SOILS

EXCAVATION

STAINED  
SOILS

NORTH

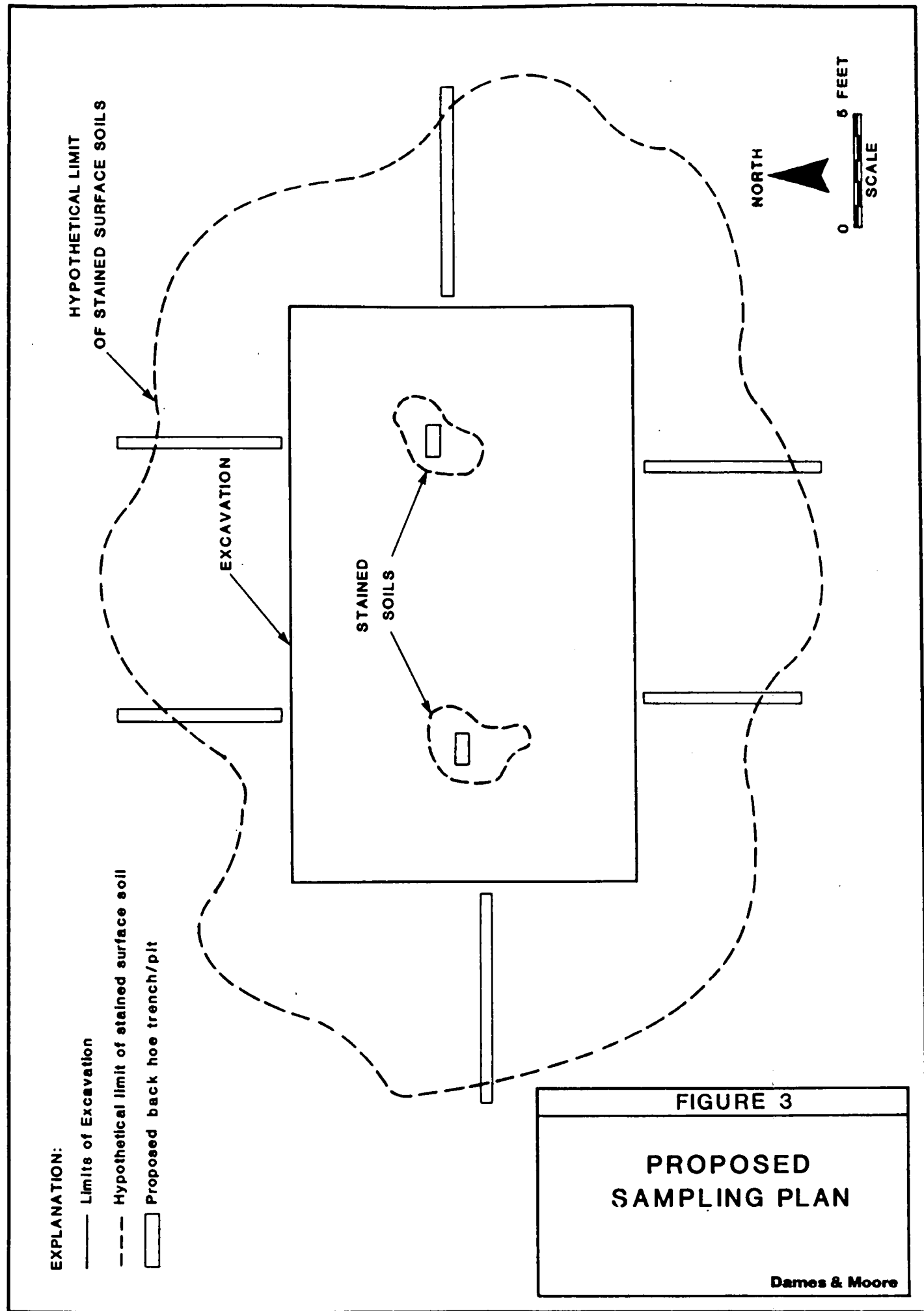
0 6 FEET

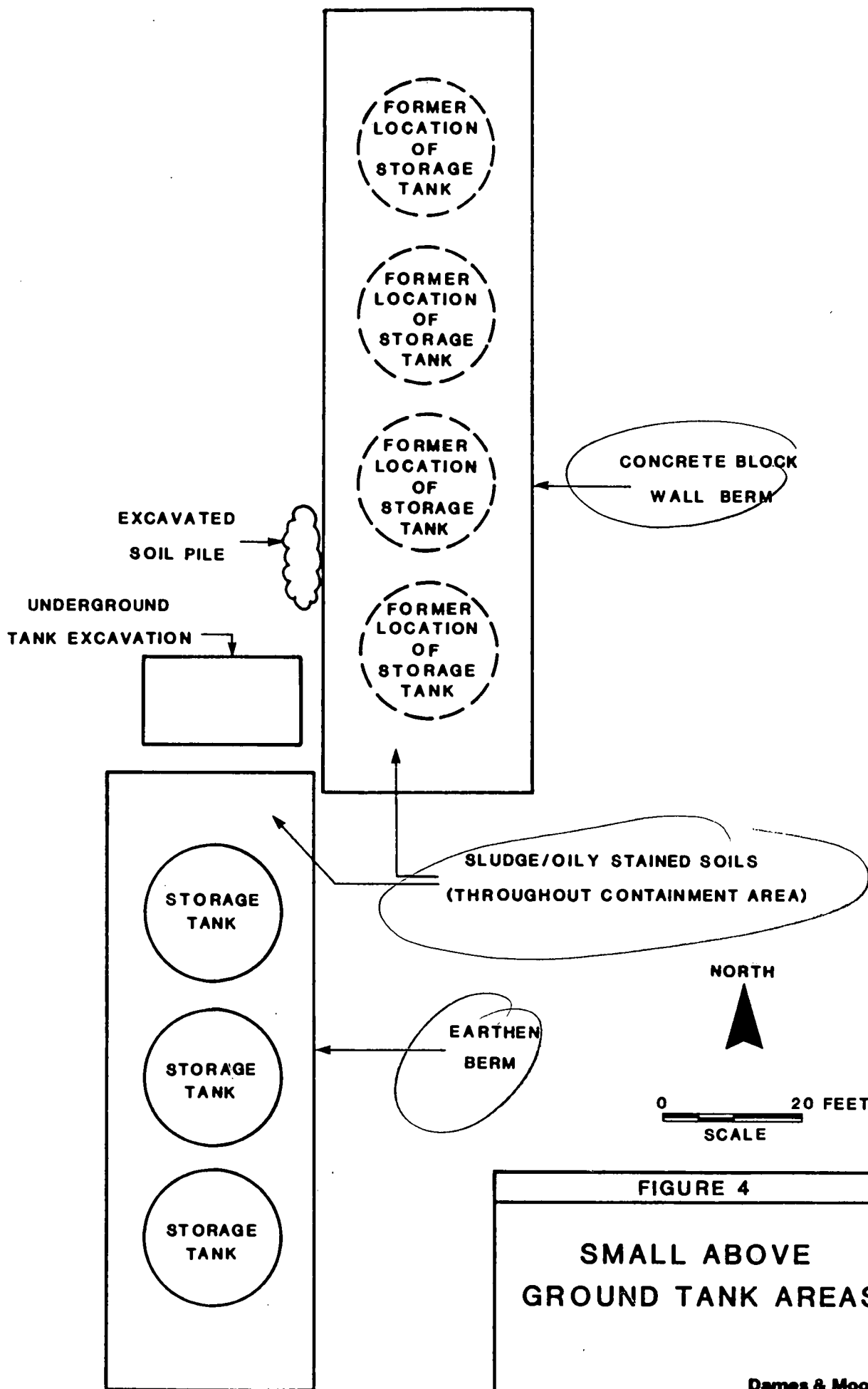
SCALE

FIGURE 3

PROPOSED  
SAMPLING PLAN

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**FIGURE 4**

**SMALL ABOVE  
GROUND TANK AREAS**



**APPENDIX A**  
**LABORATORY ANALYTICAL RESULTS**

17.0G/6-APPACOV

**ANALYTICAL  
SERVICES**

17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 / 714-523-9200

**CERTIFICATE OF ANALYSIS**

Prepared For: **Dames & Moore**  
**812 Anacapa, Suite A**  
**Santa Barbara, CA 93101**

Date: **September 26, 1986**

Attn: **Jerry Hels**

Page 1 of 2

Date Received: **September 18, 1986**

P.O. Number: **13262-013-42**

Job Number: **38315/rjj**

Four (4) soil samples labeled: "13262-013-42-1", "13262-013-42-2",  
"13262-013-42-3", and "13262-013-42-4".

The samples were digested with acid and analyzed by atomic absorption spectroscopy and inductively coupled plasma. The results are listed in Table I.

In addition, the samples were analyzed for PCB's on a Varian 3700 gas chromatograph equipped with an electron capture detector. The liquid samples were prepared by extracting approximately 2.0 grams of the sample with 10.0mls of pesticide quality hexane and shaken for 30 minutes. The liquid extracts were the purified several times with a sulfuric acid and mercury procedure. No Florisil clean-up was necessary. The purified samples were analyzed by direct injection into the gas chromatograph. The results are listed in Table II.

I certify that this report truly represents the finding of  
work performed by me or under my direct supervision

**Raymond W. Ip**  
**Asst. Tech. Director**

Reviewed and Approved

**Richard L. Merrell**  
**Laboratory Director**

Dames & Moore  
J. Hels

September 26, 1986  
JN: 38315 - Page 2

Table I

	<u>Milligrams/kilogram</u>			
	<u>13262-013-42-1</u>	<u>13262-013-42-2</u>	<u>13262-013-42-3</u>	<u>13262-013-42-4</u>
Antimony	TR<2	TR<2	TR<2	TR<2
Arsenic	2.63	4.39	1.42	2.50
Barium	190	150	260	190
Beryllium	0.5	0.4	TR<0.3	0.7
Cadmium	3.1	2.1	1.7	3.1
Chromium	26	23	16	30
Cobalt	14	12	6.0	16
Copper	32	38	16	27
Lead	130	54	1100	74
Mercury	0.17	TR<0.1	0.13	0.12
Molybdenum	1.2	1.0	0.7	0.9
Nickel	18	16	10	20
Selenium	ND<0.3	ND<0.3	ND<0.3	ND<0.3
Silver	1.3	1.5	ND<0.3	ND<0.3
Thallium	ND<5	ND<5	ND<5	ND<5
Vanadium	63	55	32	74
Zinc	120	100	490	74

Table II

<u>Sample Identification</u>	<u>Total PCB</u>		
	<u>Micrograms/gram</u>	<u>PCB-1242</u>	<u>PCB-1248</u>
	<u>Parts Per million</u>		
13262-013-42-1	29	----	29
13262-013-42-2	58	58	----
13262-013-42-3	248	248	----
13262-013-42-4	1	1	----

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

TR - Trace, this compound was present, but was below the level at which concentration could be determined.